

# ULTRIX

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## Reader's Guide and Master Index

Order Number: AA-ME82B-TE

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Product Version:

ULTRIX Version 4.0 or higher

This manual describes the documentation kits and documents that are available for your ULTRIX system. The master index helps you find topics in the documentation set.

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**maynard, massachusetts**

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# About This Manual

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This manual describes the documentation kits and documents that are available for your ULTRIX system. The master index helps you find topics in the ULTRIX documentation set.

## Audience

You should read this manual if you use ULTRIX documentation. This manual helps you decide which manuals in the documentation are most useful to you and how you should use those manuals. The master index helps you find a specific topic in the documentation set by pointing you to the pages in the appropriate manual where the topic is discussed. The master index also helps you determine which manual is the best reference for a particular topic.

## Organization

This manual contains the following chapters:

- |           |   |
|-----------|---|
| Chapter 1 | Reader's Guide  |
|           | Describes the audience and purpose of each documentation kit. Also describes the manuals that compose each kit and how to order ULTRIX documentation. |
| Chapter 2 | About the Master Index  |
|           | Describes the special typographical conventions used in the master index.   |
| Chapter 3 | Index   |
|           | Provides a master index for books in the ULTRIX documentation set.  |

## Conventions

The following list details the conventions used in this document. See Chapter 2 for information about conventions used in the master index.

- |                   |  |
|-------------------|--|
| %                 | The default user prompt is your system name followed by a right angle bracket. In this manual, a percent sign ( %) is used to represent this prompt. |
| <b>user input</b> | This bold typeface is used in interactive examples to indicate typed user input.   |

`system output` This typeface is used in interactive examples to indicate system output and also in code examples and other screen displays. In text, this typeface is used to indicate the exact name of a command, option, partition, pathname, directory, or file.

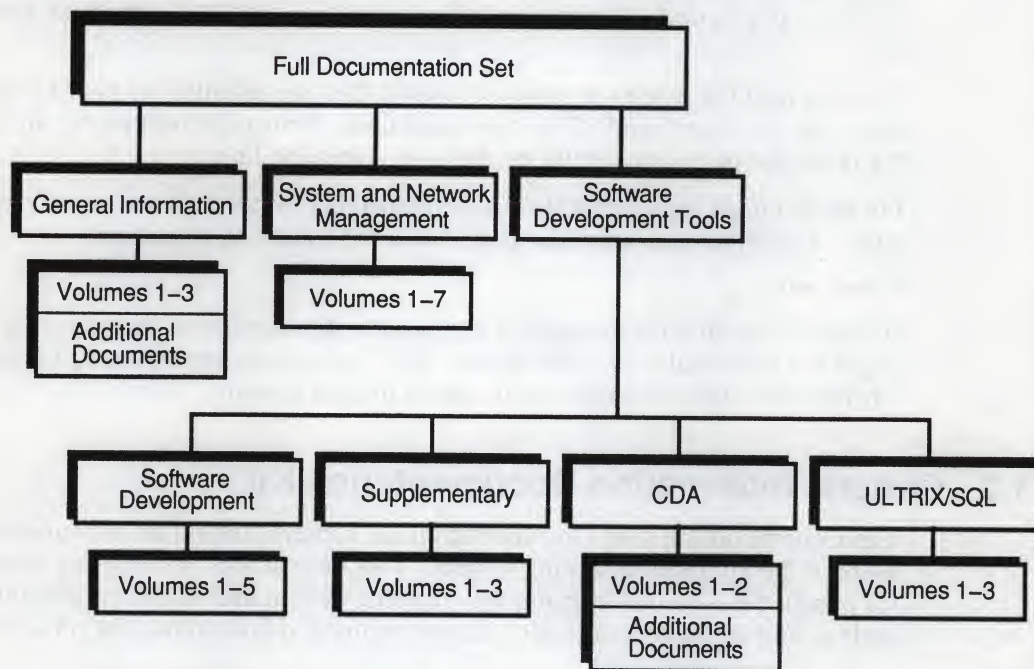
`cat(1)` Cross-references to the *ULTRIX Reference Pages* include the appropriate section number in parentheses. For example, a reference to `cat(1)` indicates that you can find the material on the `cat` command in Section 1 of the reference pages.



The ULTRIX Full Documentation Kit contains all the manuals in the ULTRIX documentation set, with the exception of some installation documents and informational letters. The installation documents and letters are packaged with your ULTRIX software distribution media. Use those documents when you install your ULTRIX system.

The Full Documentation Kit is divided into three smaller kits. Figure 1-1 illustrates how the documentation kit is divided.

**Figure 1-1: Organization of the Full Documentation Kit**



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The three-kit division of the Full Documentation Kit addresses the needs of three audiences:

- General users

People who are general users (which includes anyone who uses an ULTRIX system) should read and refer to the manuals in the General Information Documentation Kit.

- **System administrators**  
People who are responsible for managing an ULTRIX system or network should read and refer to manuals in the System and Network Management Documentation Kit.
- **Programmers**  
People who write programs of any size should refer to the Software Development Tools Documentation Kit for information on tools and programming recommendations.

The rest of this chapter describes ULTRIX documentation. The first section describes the ULTRIX online documentation. Sections 1.2 through 1.4 describe the printed contents of the Full Documentation Kit. The last section describes how to order ULTRIX documentation.

## 1.1 Online Reference Information

The ULTRIX documentation set contains reference information that you can use either on line or in printed form. This reference information consists of a number of reference pages, each of which describes one topic, such as a command, function, or file.

You can read the reference pages on line (if they are installed on your system) by using the `man` command. This command finds, formats (if necessary), and displays the reference page you specify on the `man` command line.

For more information about the `man` command, you can read the `man(1)` reference page. To display this reference page, issue the following command:

```
% man man
```

If you receive an error message in response to this command, the reference pages might not be installed on your system. See your system administrator to determine whether the reference pages can be added to your system.

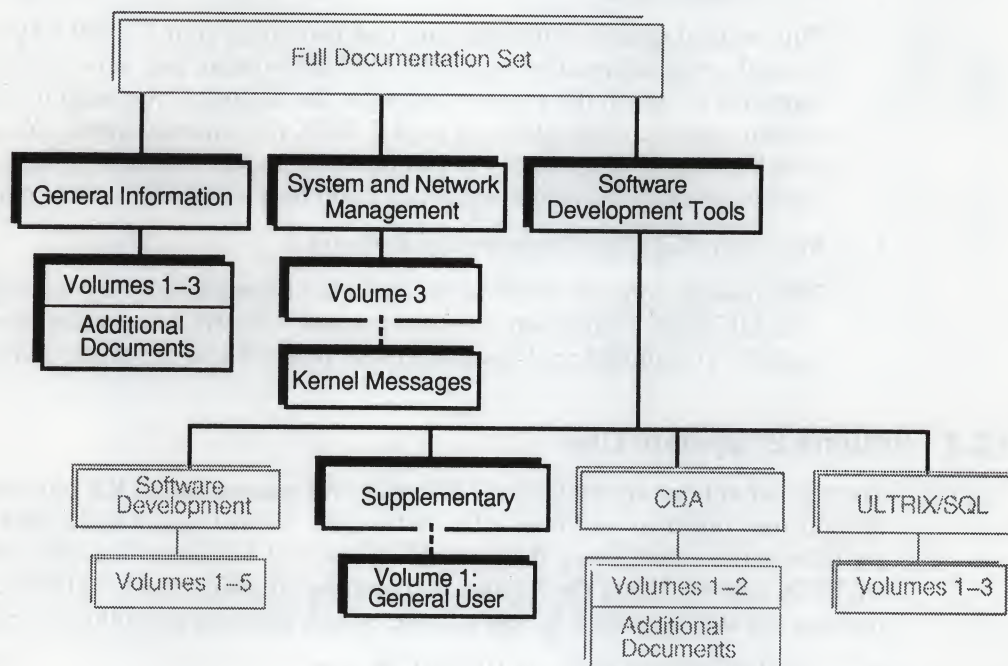
## 1.2 General Information Documentation Kit

The General Information Documentation Kit contains important information for all users of the ULTRIX operating system. This kit contains introductory information for people who are just learning the ULTRIX system and advanced user information, such as how to make your login account secure and how to use the `nawk` utility.

Figure 1-2 illustrates documents that are of interest to general users.



**Figure 1-2: Documents of Interest to General Users**



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As the figure shows, general users might need to refer the *Kernel Messages Reference Manual* and the *Supplementary Documents, Volume 1: General User* in addition to the manuals in the General Information Documentation Kit. For a description of the *Kernel Messages Reference Manual*, see Section 1.3.3. For a description of the *Supplementary Documents, Volume 1*, see Section 1.4.4.

The following documents are part of the General Information Documentation Kit, but are not part of any volume in that kit:

- *Application Sources Mailer*

You can return this reply card to receive the *ULTRIX Software Source Book*. The *ULTRIX Software Source Book* contains a list of products that are developed by vendors other than Digital and that run on the ULTRIX system.

- *vi Beginner's Reference Card*

The card lists *vi* editor commands and their functions and is useful as a quick reference for new users of the *vi* text editor.

- *Release Notes*

This manual provides information about how the ULTRIX software has changed for this release. The *Release Notes* also describe errors in this version of the software and documentation changes. You should read the *Release Notes* because they contain information that is important to each type of ULTRIX system user and to each release of the ULTRIX software.

The rest of this section describes the volumes in the General Information Documentation Kit.



### 1.2.1 Volume 1: Product Summaries and Unsupported Software

Volume 1 of the General Information Documentation Kit contains this manual and the following manuals:

- *Technical Summary*

This manual describes the software that composes your ULTRIX system. The manual gives information about the ULTRIX system and network facilities, the standards to which the system conforms, the hardware you need to run the system, and the components of the ULTRIX documentation set. You should read the *Technical Summary* if you need a compact technical reference or if you need to develop the technical specification for a computer system purchase.

- *Reference Pages for Unsupported Software*

This manual contains information about the unsupported software included on your ULTRIX distribution kit. Unsupported software is not maintained by Digital. You should read these reference pages if you use unsupported software.

### 1.2.2 Volume 2: System Use

The second volume of the General Information Documentation Kit provides introductory information for new ULTRIX users. This volume is the best reference for information about using the text editors and text formatters available on the ULTRIX system. Using the `nawk` programming language and ULTRIX security features are also described in this volume, which contains the following manuals:

- *The Little Gray Book: An ULTRIX Primer*

This guide is an introduction to working with the ULTRIX operating system and its related tools. This manual is especially useful to new users because it provides introductory tutorials on the ULTRIX operating system, including tutorials on the file system, the C shell, commands, and the `vi` editor. Experienced computer users will find the appendixes useful; they describe coming to the ULTRIX system from the VMS and MS-DOS operating systems and supply a quick reference table for ULTRIX commands.

- *The Big Gray Book: The Next Step with ULTRIX*

This guide provides intermediate information about the ULTRIX operating system and the tools it provides. The guide provides more advanced information than *The Little Gray Book: An ULTRIX Primer*, while avoiding descriptions of every available ULTRIX tool or command. The guide introduces writing C shell, `sed`, and `awk` scripts. You should read this manual if you have read and understood the *Primer* or if you have gained some ULTRIX experience and would now like to learn more. Experienced ULTRIX users can use this manual for detailed information on specific topics.

- *Guide to the `nawk` Utility*

This guide introduces the important principles and concepts of the `nawk` programming language. The `nawk` programming language allows you to display information in files, prepare reports using information stored in a file, perform calculations using numeric information stored in a file, and analyze text for spelling and frequency of words and letters. You can combine these operations to perform complex tasks. You should read this manual if you want to learn how to use `nawk`.



- *Security Guide for Users*

This guide describes the security features available in the ULTRIX system. The manual explains how you can protect your account, files, and workstation. You should read this manual if you use an ULTRIX system and are concerned about security issues.

- *Reference Pages Section 7: Macro Packages and Conventions*

This reference page section contains miscellaneous information. Refer to this section for descriptions of the following:

- ASCII character codes
- Mail addressing formats
- The root file system
- The `time` command
- The `man`, `ms`, and `me` macro packages for formatting text

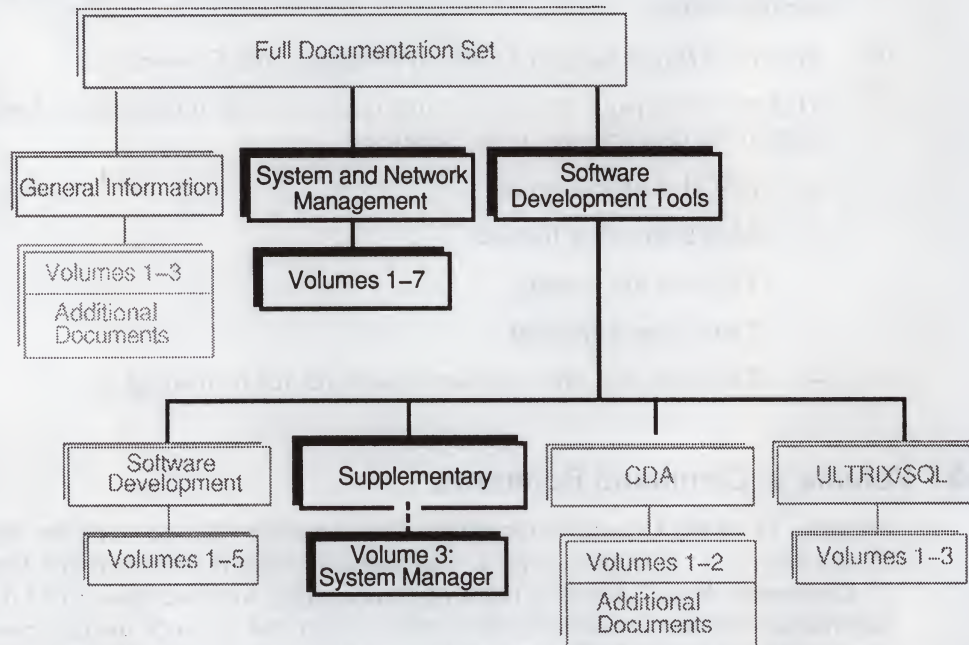
### **1.2.3 Volume 3: Command Reference**

Volume 3A of the General Information Documentation Kit contains the *Reference Pages Section 1: Commands A – L*. Volume 3B contains the *Reference Pages Section 1: Commands M – Z*. Refer to these reference pages for descriptions of ULTRIX commands that are available to all users. (System and network management commands are documented in the *Reference Pages Section 8: Maintenance*.)

## **1.3 System and Network Management Documentation Kit**

System administrators need the System and Network Management Documentation Kit. This documentation kit contains manuals that describe how to configure systems, maintain disks, and set up and use system administration tools. Figure 1-3 illustrates the documents that are useful to system administrators.

**Figure 1-3: Documents of Interest to System Administrators**



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Notice that in addition to the books in the System and Network Management Documentation Kit, system administrators might find the *Supplementary Documents, Volume 3: System Manager* useful. For a description of this supplementary document, see Section 1.4.4.

### 1.3.1 Volume 1: System Setup

The first volume of the System and Network Management Documentation Kit contains system setup information. System administrators can use the manuals in this volume to become familiar with system administration concepts. This volume contains the following manuals:

- *Guide to Software Licensing*

This guide describes software licensing and the license management tools associated with the Digital Distributed Software Licensing Architecture. The guide gives information about the License Management Facility and Product Authorization Keys. You should read this manual if you are responsible for managing software licenses on ULTRIX systems.

- *Guide to System Environment Setup*

This guide describes how to set up and maintain a working ULTRIX environment for users at your site. The manual addresses topics such as modifying system files, adding and removing user accounts, adding devices, setting up the print system, and so on. You should read this manual if you are responsible for managing and maintaining an ULTRIX system.



- *Guide to System and Network Setup*

This guide identifies a series of tasks that you must perform to set up your system and establish it on a network. The guide provides step-by-step information on how to complete each task. Although the guide is primarily focused on setting up your system and network, you can use it to modify an existing system or network configuration. You should read this manual if you are a novice system or network administrator.

- *Guide to the Location Broker*

This guide describes the administration of the Location Broker, a component of DECrpc Version 1.0 that is based on Apollo's Network Computing System (NCS). Location Broker software provides run-time name service support for distributed application programs that use remote procedure calls. You should read this manual if you are a system administrator who sets up the Location Broker or administers systems that run distributed applications.

- *Security Guide for Administrators*

This guide describes the tasks and considerations associated with managing system security in an ULTRIX environment. You should read this guide if you are responsible for establishing and implementing system security policies on any machine that runs the ULTRIX operating system.

- *Guide to PrintServer Clients*

This guide explains how to use the PrintServer software to print files on Digital's family of network laser printers. The guide explains the commands you use to print files and manage printer queues. The manual also describes how to customize your print jobs and handle some special types of media. You should read this manual if you use the PrintServer to print files or if you set up and maintain the PrintServer environment.

### **1.3.2 Volume 2: Local System Management**

Volume 2 of the System and Network Management Documentation Kit describes how to manage a standalone, or local, ULTRIX system. This volume contains the following manuals:

- *Guide to Configuration File Maintenance*

This guide contains information on how to maintain the system configuration file and how to build a new kernel, either automatically or manually. The configuration file provides you with the ability to configure your system to meet your needs. You should read this manual if you are responsible for maintaining an ULTRIX system.

- *Guide to Shutdown and Startup*

This guide gives information on boot commands and on shutting down and starting up your system. The manual gives the boot command for each processor ULTRIX supports. The guide also explains various ways to shut down your system and the three system startup modes: single-user, multiuser, and conversational. You should read this manual if you are responsible for managing an ULTRIX system.



- *Guide to Backup and Restore*

This guide describes using ULTRIX system commands and utilities to back up and restore files and file systems. The guide gives you information that helps you develop system backup strategies for local systems and network environments. You should read this manual if you are responsible for maintaining disks on an ULTRIX system.

- *Guide to Disk Maintenance*

This guide provides information on handling disk space. The guide presents background information on disks and file systems, describes how to manage disk space and how to partition disks, and explains bad block replacement. You should read this manual if you are responsible for maintaining disks on an ULTRIX system.

### 1.3.3 Volume 3: Problem Solving

Volume 3 of the System and Network Management Documentation Kit contains information on problem solving and troubleshooting your ULTRIX system. This volume contains the following manuals:

- *Guide to System Crash Recovery*

This guide gives information about recovering from a system crash using ULTRIX utilities. This manual also presents guidelines from which you can develop specific crash recovery procedures for your site. You should read this manual if you are responsible for rebooting your system after it crashes and controlling and preventing system crashes.

- *Guide to the Error Logger*

This guide contains information about the error logger and how it records and reports errors and other events that occur on your ULTRIX system. The guide gives an overview of the error logger, describes how to control error logger functions, and describes using the Error Report Formatter, `uerf`. You should read this manual if you manage error information on an ULTRIX system.

- *Guide to System Exercisers*

The guide explains how to run system exercisers to test file systems, memory, peripherals, and networks. You should read this manual if you are responsible for finding and correcting problems with your local configuration of an ULTRIX system.

- *Kernel Messages Reference Manual*

This manual describes the messages produced by the files in the ULTRIX kernel. You should refer to this manual if you receive a hardware-detected or software-detected message that is reported through the ULTRIX kernel software.



### 1.3.4 Volume 4: Network Management

Volume 4 of the System and Network Management Documentation Kit describes managing networks and distributed system services. This volume contains the following manuals:

- *Introduction to Networking and Distributed System Services*

This guide provides an overview of basic networking concepts and the ULTRIX software's distributed system services. The distributed system services include the BIND/Hesiod and Yellow Pages (YP) naming services, the Network Time Protocol (NTP) and the Timed Synchronization Protocol (TSP) time services, and the Kerberos authentication service. The guide also provides an overview of the Simple Network Management Protocol (SNMP) and the ULTRIX implementation of the SNMP Agent. You should read this guide if you are responsible for maintaining TCP/IP networks.

- *Guide to Ethernet Communications Servers*

This guide provides information about the tasks and procedures you use to interface the ULTRIX operating system and the communications servers in an Ethernet LAN. The guide also provides information about maintaining these interfaces. You should read this manual if you are responsible for maintaining local area networks on an ULTRIX system.

- *Guide to the Network File System*

This guide provides information about the Network File System (NFS). NFS is a facility for sharing files in a heterogeneous environment of different processors, operating systems, and networks. The manual provides introductory, setup, and troubleshooting information and helps you develop NFS management procedures. You should read this manual if the system you administer is an NFS server or client.

- *Guide to the BIND/Hesiod Service*

This guide provides introductory information about the BIND/Hesiod service. The BIND/Hesiod service allows client systems to obtain distributed database information, such as host names, host addresses, and user passwords, from a server. The guide explains how to install and troubleshoot this service. You should read this manual if you are responsible for maintaining utilities, such as the mail utility, on a number of ULTRIX systems.

- *Guide to the Yellow Pages Service*

This guide gives information about the Yellow Pages (YP) service. YP is a distributed database lookup service that maintains and propagates databases around a network. You should read this manual if you are responsible for managing more than one system connected by a network.

- *Guide to Kerberos*

This guide describes Kerberos, its setup, and the network programming connections of the kerberos daemon to a Kerberos-authenticated application. Kerberos enhances security by authenticating applications to each other across machine boundaries in a distributed network. ULTRIX Kerberos supports the authentication of commonly networked applications, such as named and auditd. You should read this manual if you are responsible for setting up a network with Kerberos authentication.



- *Guide to the uucp Utility*

This guide describes how to set up and maintain the ULTRIX uucp utility. The uucp utility allows you to copy files from one UNIX system to another UNIX system. You should read this manual if you manage a system that runs uucp.

- *Guide to IBM Terminal Emulation for VAX Processors*

This guide gives information about the IBM terminal emulator. The 2780/3780 Terminal Emulator is a software package that allows your ULTRIX operating system to emulate a 2780 or 3780 IBM terminal. This manual provides introductory, setup, maintenance, and troubleshooting information. You should read this manual if your system uses the terminal emulator software.

### 1.3.5 Volume 5: Server and Client Management

Volume 5 of the System and Network Management Documentation Kit addresses setting up workstation servers and workstations. This volume includes information about running diskless workstations and installing software over the network. The following manuals are included in Volume 5:

- *Guide to Server Setup*

This guide explains how to set up a server processor to provide services to registered clients. The guide discusses setting up Diskless Management Services (DMS) and Remote Installation Services (RIS) areas. You should read this manual if you install and maintain DMS or RIS servers.

- *Guide to Diskless Management Services*

This guide gives information about installing and maintaining a DMS area on a server. A DMS server area contains software that is available to registered client processors that have licenses for that software. No client has an individual copy of the software in the server area; each client uses the software that is stored in the server area. Therefore, you can perform system administration tasks on the software in the server area and simplify the task of managing a number of client systems. You should read this manual if you are responsible for setting up and maintaining a server or diskless clients.

- *Guide to Remote Installation Services*

This guide explains how to install and maintain a Remote Installation Services (RIS) area. Once you create a RIS area, you can install ULTRIX software on RIS clients over the network, rather than using physical distribution media. You should read this manual if you are responsible for setting up a RIS area on a server.

### 1.3.6 Volume 6: Device and File Reference

Volume 6 of the System and Network Management Documentation Kit contains the following reference information:

- *Reference Pages Section 4: Special Files*

These reference pages describe the files related to device driver functions and network support. You should refer to these reference pages if you need information about devices. For example, you might refer to these reference



pages if you are a programmer who is writing a device driver or a system administrator who is partitioning a disk.

- *Reference Pages Section 5: File Formats*

These reference pages describe formats of various files and how the system files are used. The files described include assembler and link editor output, system accounting, and file system formats. Refer to this reference page section if you need information about file formats.

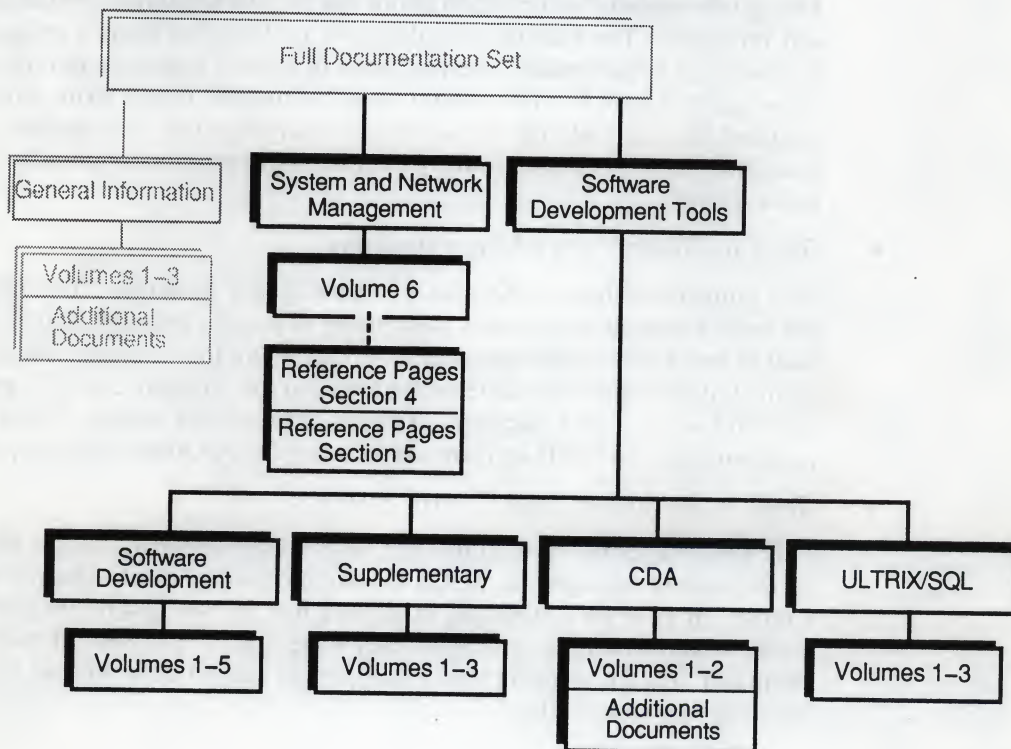
### 1.3.7 Volume 7: Maintenance Command Reference

Volume 7 of the System and Network Management Documentation Kit contains the *Reference Pages Section 8: Maintenance*. These reference pages describe commands used to create new file systems and to verify the integrity of file systems. Use these reference pages when you perform system administration tasks.

## 1.4 Software Development Tools Documentation Kit

Software developers need the Software Development Tools Documentation Kit. This kit contains four subkits that provide information programmers might find useful: the Software Development Documentation Kit, the ULTRIX/SQL Documentation Kit, the CDA Documentation Kit, and the Supplementary Documents Kit. Figure 1-4 shows the documents that are useful to programmers.

**Figure 1-4: Documents of Interest to Programmers**



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Notice that in addition to the manuals in the Software Development Tools Kit, programmers might need the *Reference Pages Section 4: Special Files* and the



*Reference Pages Section 5: File Formats.* The Section 4 and Section 5 reference pages are described in Section 1.3.6.

### 1.4.1 Software Development Kit

The Software Development Documentation Kit contains programming information that is useful to most programmers who use the ULTRIX system. The guides in this kit describe the ULTRIX programming environment. The Software Development Documentation Kit is divided into five volumes.

#### 1.4.1.1 Volume 1: General Programming – Volume 1 of the Software Development Documentation Kit contains much of the information programmers need to develop software on an ULTRIX system. This kit contains the following manuals:

- *Guide to Languages and Programming*

This guide describes the compilers and high-level languages that are part of the compiler system. The manual gives an overview of the ULTRIX driver commands and system tools that are provided for the programming environment, and it describes how to program in a POSIX environment. The manual also describes debugging programs and provides security guidelines for programmers. Although this manual discusses implementation details for the supported languages, it does not list the syntax and definition of the elements of each language. You should read this manual if you are a programmer on an ULTRIX system.

- *Guide to Developing International Software*

This guide contains information about the ULTRIX internationalization tools and functions. The manual describes how to design or adapt a program to meet international requirements, such as those of a local language and the character set associated with it. You should read this manual if you write programs intended for multinational or non-English language use. Translators involved in translating messages displayed by international programs might also find this guide useful.

- *Guide to X/Open curses Screen Handling*

This guide describes the X/Open `curses` library package. This manual covers the basic concepts you should understand to use the package, and it describes how to write screen-management programs using the `curses` routines. The manual also outlines the differences between the X/Open `curses` package and the BSD 4.2 `curses` package. You should read this manual if you are a C programmer who wants to learn about using the X/Open `curses` package.

- *Guide to the Source Code Control System*

This guide describes how to use the Source Code Control System (SCCS) and its commands and options. SCCS is a source management system that maintains a record of each set of changes made to a file, including why the changes were made, who made them, and when they were made. You should read this manual if you are working on a multi-person project or if you are responsible for archiving source files.



- *Guide to Preparing Software for Distribution on ULTRIX Systems*

This guide contains information about preparing software distribution kits that are compatible with the `setld` utility. The `setld` utility installs and manages ULTRIX software kits and ULTRIX layered product kits. You should read this manual if you prepare software for installation on ULTRIX systems.

- *The Packet Filter: An Efficient Mechanism for User-Level Network Code*

This article gives information about implementing networking protocols using the packet filter, a kernel-resident, protocol-independent packet demultiplexer. You can write user-level (as opposed to kernel-resident) protocols that use the packet filter to demultiplex received packets. When you use the packet filter, your user-level protocol performs efficiently, and you avoid the development and maintenance issues involved in writing kernel-resident protocols. You should read this article if you develop network protocols.

- *POSIX Conformance Document*

This manual details how Version 4.0 of the ULTRIX operating system meets the "conforming implementation" requirements for an operating system as defined in the following standards:

- IEEE 1003.1–1988 (POSIX) standard
- POSIX Federal Information Processing Standard (FIPS 151–1)
- ISO DIS 9944

You should read this manual if you want to evaluate the ULTRIX operating system for POSIX conformance.

**1.4.1.2 Volume 2: VAX C Programming** – The second volume of the Software Development Documentation Kit contains the *Guide to VAX C for ULTRIX*. This guide contains information on how to develop and debug VAX C programs on the ULTRIX operating system. The VAX C compiler is written specifically to compile programs that run on VAX hardware. The ULTRIX system version of the VAX C compiler is similar to the VAX C compiler that runs on the VMS system. You should read this manual if you plan to use VAX C.

**1.4.1.3 Volume 3: Network Programming** – Volume 3 of the Software Development Documentation Kit contains manuals that address writing programs that run over a network. This kit contains the following manuals:

- *Guide to Network Programming*

This guide introduces the architectures and components of the ULTRIX network programming environment. The guide discusses how network layering schemes, the socket interface, and ULTRIX network components can help you write network applications. The manual also describes the programming interface to the Extended SNMP Agent supported by the ULTRIX operating system. You should read this manual if you write network application programs.



- *Guide to the X/Open Transport Interface*

This guide contains information about developing network application programs on the ULTRIX operating system. This guide also contains information about migrating from socket-based software to the X/Open Transport Interface (XTI) software. You should read this manual if you are an experienced programmer who plans to write network application programs using XTI.

- *DECrpc Programming Guide*

This guide provides programming information for DECrpc Version 1.0. DECrpc is based on and is compatible with Version 1.5 of the Network Computing System (NCS) that was developed by Apollo Computer Corporation. You should refer to this manual if you develop distributed applications.

- *Guide to the Data Link Interface*

This guide describes using the Data Link Interface (DLI) to write application programs. DLI is network software that allows programs running on an Ethernet node to communicate with other data link programs on other Ethernet nodes. DLI allows your program to interact directly with the broadcast network device drivers of an ULTRIX system. You should read this manual if you plan to use DLI.

- 1.4.1.4 Volume 4: System Call Reference** – Volume 4 of the Software Development Documentation Kit contains the *Reference Pages Section 2: System Calls*. System calls are the entry points to the ULTRIX kernel. This section contains descriptions of calls such as `open`, `getpagesize`, and `sigvec`. You should refer to these reference pages if you write software that calls the ULTRIX kernel.

- 1.4.1.5 Volume 5: Library Routine Reference** – The fifth volume of the Software Development Documentation Kit contains the *Reference Pages Section 3: Library Routines*. The ULTRIX system contains library routines for C and FORTRAN programmers. The library routines are organized into a number of libraries, including libraries for writing international software, standards-conforming software, and math software. The ULTRIX system also contains the Internet network library and various other specialized libraries. You should refer to these reference pages if you write software that calls routines in any of the ULTRIX libraries.

## **1.4.2 ULTRIX/SQL Documentation Kit**

The ULTRIX/SQL Documentation Kit contains user and reference material that describes how to use ULTRIX/SQL. ULTRIX/SQL is a relational database management system with an SQL (Structured Query Language) interface. You can use ULTRIX/SQL through ULTRIX/SQL interactive utilities. Alternatively, you can purchase additional software, such as an ULTRIX/SQL preprocessor for application development, and use ULTRIX/SQL through that software.

The ULTRIX/SQL Documentation Kit includes the following manuals:

- Volume 1:
  - *ULTRIX/SQL Operations Guide*

This guide explains the initialization and operations procedure for ULTRIX/SQL installations.



- *ULTRIX/SQL NET User's Guide*

This guide explains how to access remote ULTRIX/SQL databases and use the `netu` utility.

- *ULTRIX/SQL Database Administrator's Guide*

This guide describes how to create and maintain an ULTRIX/SQL database.

- Volume 2: *ULTRIX/SQL Reference Manual*

This manual describes the ULTRIX/SQL relational database system and query language. The manual also explains how to define terminals to the ULTRIX/SQL, forms-based utilities.

### 1.4.3 CDA Documentation Kit

The CDA (Compound Document Architecture) Documentation Kit contains user and reference material that describes the CDA Services used to convert, view, and transfer CDA documents and to create CDA-conforming compound document applications and converters. The CDA Services and their documentation are intended for use by system and application programmers.

The CDA Documentation Kit consists of the following manuals:

- *Introduction to the CDA Services*

This manual provides an overview of compound document processing terminology and the various components of CDA. The components of CDA include the CDA Toolkit; the Converter Architecture; the DDIF and DTIF interchange formats; and the command line interface to converting, viewing, and transferring CDA documents.

- *Guide to Creating Compound Documents with the CDA Toolkit*

This guide is a tutorial that describes how to use the CDA Toolkit to create CDA-conforming compound document applications on ULTRIX and VMS systems.

- *CDA Reference Manual Volume 1 and Volume 2*

This manual provides material that supplements the CDA user guides. The reference material describes the DDIF and DTIF aggregates and syntax diagrams; CDA Toolkit and user-defined routines; converter routines; callable DECwindows and character-cell CDA viewer routines; and the ULTRIX and VMS system commands used to convert, view, and transfer CDA documents.

### 1.4.4 Supplementary Documents Kit

The ULTRIX Supplementary Documents Kit contains three volumes. Each volume contains articles written by computer scientists and program developers at Bell Laboratories and the University of California at Berkeley. Topics range from "getting-started" procedures to the details of the operating system. The articles in the supplementary information provide some information that is unavailable elsewhere. However, you should be aware that the information in some articles is dated.

Some information in the *Supplementary Documents* is provided by other manuals in the ULTRIX documentation set. Where other manuals duplicate information in the



*Supplementary Documents*, the information in the other manuals supersede information in the *Supplementary Documents*.

The following list describes the *Supplementary Documents*:

- *Supplementary Documents, Volume 1: General User*

This volume contains articles written for general use. The articles address getting started with the ULTRIX operating system, using text editors and command interpreters, and formatting documents. This volume also gives information about using unsupported software. You should read this volume if you want to learn about general operating system topics, particularly unsupported software.

- *Supplementary Documents, Volume 2: Programmer*

This volume contains articles that deal with programming and programming tools. The articles cover topics such as program and library maintenance tools, the inner workings of the ULTRIX system, and system and kernel facilities available to programs. You should read articles in this volume if you write programs that run on the ULTRIX operating system.

- *Supplementary Documents, Volume 3: System Manager*

This volume is written for people responsible for the installation, administration, and daily maintenance of the ULTRIX operating system. Topics include a comparison of the fast file system with the previous UNIX file system, uucp implementation, and UNIX security. You should read this volume if you are a system administrator.

## 1.5 Ordering ULTRIX Documentation

To order ULTRIX documentation, refer to the page at the back of this manual entitled "How to Order Additional Documentation." This page describes a number of methods you can use to order documentation. You can also order documentation from DECdirect if you are a member of that service. For more information about ordering documentation from DECdirect, write to the following address:

Digital Equipment Corporation  
Software Documentation  
Continental Boulevard  
Merrimack, NH 03054

Table 1-1 details the documentation kits you can order.



**Table 1-1: ULTRIX Documentation Kit Order Numbers**

Documentation Kit	Order Number
Full Documentation Kit	QA-VEYAA-GZ
General Information Documentation Kit	QA-VEYAD-GZ
System and Network Management Documentation Kit	QA-VEYAE-GZ
Software Development Tools Documentation Kit	QA-VEYAB-GZ
Software Development Documentation Kit	QA-VEYAG-GZ
ULTRIX/SQL Documentation Kit	QA-YHTAA-GZ
CDA Documentation Kit	QA-VEYAH-GZ
Supplementary Documents Kit	QA-VEYAC-GZ

Each kit includes the manuals, binders to hold each volume, and spine inserts that label the binders.

You can also order individual manuals. In most cases, individual manuals come with only the manual covers and any tabbed dividers. Manuals that have an order number beginning with the letters "AI" include binders and spine inserts, even if ordered individually.

You can order binders to store individual manuals. Digital offers binders for books that are  $8\frac{1}{2} \times 11$  inches; the binders have rings that are  $1\frac{1}{2}$ , 2, or  $2\frac{1}{2}$  inches in diameter. Table 1-2 lists the order numbers for the binders.

**Table 1-2:  $8\frac{1}{2} \times 11$ -Inch Binder Order Numbers**

Binder Ring Size	Order Number
$1\frac{1}{2}$ -inch ring	99-07642-01
2-inch ring	99-07643-01
$2\frac{1}{2}$ -inch ring	99-07644-01

Table 1-3 lists the order number for each manual in the Version 4.0 ULTRIX documentation set. Individual manuals listed in this table are revised periodically. If you have a version of the ULTRIX system other than Version 4.0, the manual numbers listed in this table might not be correct for your system. The best way to be sure that you are ordering the correct manual is to telephone Technical Support before you place your order. Technical Support can help ensure that you order the manuals that apply to your version of the operating system. (The telephone number for Technical Support is listed on the "How to Order Additional Documentation" page.)

**Table 1-3: Individual Manual Order Numbers**

<b>Title</b>	<b>Order Number</b>
<i>Advanced Installation Guide</i>	AA-ME86B-TE
<i>Application Sources Mailer</i>	AV-LY29B-TE
<i>Basic Installation Guide</i>	AA-PBL0A-TE
<i>The Big Gray Book: The Next Step with ULTRIX</i>	AA-PBKNA-TE
<i>CDA Reference Manual Volume 1</i>	AI-PBD3A-TE
<i>CDA Reference Manual Volume 2</i>	AI-PC02A-TE
<i>DECrpc Programming Guide</i>	AA-PBKYA-TE
<i>Guide to Backup and Restore</i>	AA-ME92B-TE
<i>Guide to the BIND/Hesiod Service</i>	AA-LY21B-TE
<i>Guide to Configuration File Maintenance</i>	AA-ME90B-TE
<i>Guide to Creating Compound Documents with the CDA Toolkit</i>	AA-PBOKA-TK
<i>Guide to the Data Link Interface</i>	AA-PBKZA-TE
<i>Guide to Developing International Software</i>	AA-LY26B-TE
<i>Guide to Diskless Management Services</i>	AA-MF01B-TE
<i>Guide to Disk Maintenance</i>	AA-ME93B-TE
<i>Guide to the Error Logger</i>	AA-ME95B-TE
<i>Guide to Ethernet Communications Servers</i>	AA-ME98B-TE
<i>Guide to IBM Terminal Emulation for VAX Processors</i>	AA-MF04B-TE
<i>Guide to Kerberos</i>	AA-PBKVA-TE
<i>Guide to Languages and Programming</i>	AA-ML94B-TE
<i>Guide to the Location Broker</i>	AA-PBKSA-TE
<i>Guide to the nawk Utility</i>	AA-PBKPA-TE
<i>Guide to the Network File System</i>	AA-ME99B-TE
<i>Guide to Network Programming</i>	AA-PBKWA-TE
<i>Guide to Preparing Software for Distribution on ULTRIX Systems</i>	AA-MG62B-TE
<i>Guide to PrintServer Clients</i>	AA-PC31A-TE
<i>Guide to Remote Installation Services</i>	AA-MF02C-TE
<i>Guide to Server Setup</i>	AA-ML74D-TE
<i>Guide to Shutdown and Startup</i>	AA-ME91B-TE
<i>Guide to Software Licensing</i>	AA-PBKRA-TE
<i>Guide to the Source Code Control System</i>	AA-ME84B-TE
<i>Guide to System Crash Recovery</i>	AA-ME94B-TE
<i>Guide to System Environment Setup</i>	AA-ME89B-TE
<i>Guide to System Exercisers</i>	AA-ME96B-TE
<i>Guide to System and Network Setup</i>	AA-ME88B-TE
<i>Guide to the uucp Utility</i>	AA-MF03B-TE



**Table 1-3: (continued)**

<b>Title</b>	<b>Order Number</b>
<i>Guide to VAX C for ULTRIX</i>	AA-ME83B-TE
<i>Guide to X/Open curses Screen Handling</i>	AA-LY27B-TE
<i>Guide to the X/Open Transport Interface</i>	AA-PBKXA-TE
<i>Guide to the Yellow Pages Service</i>	AA-ME00B-TE
<i>Introduction to the CDA Services</i>	AA-PB0JA-TK
<i>Introduction to Networking and Distributed System Services</i>	AA-ME97B-TE
<i>Kernel Messages Reference Manual</i>	AA-PBKUA-TE
<i>The Little Gray Book: An ULTRIX Primer</i>	AA-MG64B-TE
<i>The Packet Filter: An Efficient Mechanism for User-Level Network Code</i>	AA-PBM2A-TE
<i>POSIX Conformance Document</i>	AA-LY25C-TE
<i>Reader's Guide and Master Index</i>	AA-ME82B-TE
<i>Reference Pages Section 1: Commands</i>	AI-PC0WA-TE
<i>Reference Pages Section 2: System Calls</i>	AA-LY15B-TE
<i>Reference Pages Section 3: Library Routines</i>	AA-LY16B-TE
<i>Reference Pages Section 4: Special Files</i>	AA-LY17B-TE
<i>Reference Pages Section 5: File Formats</i>	AA-LY18B-TE
<i>Reference Pages Section 7: Macro Packages and Conventions</i>	AA-LY19B-TE
<i>Reference Pages Section 8: Maintenance</i>	AA-LY20B-TE
<i>Reference Pages for Unsupported Software</i>	AA-MF05B-TE
<i>Release Notes</i>	AA-ME85C-TE
<i>Security Guide for Administrators</i>	AA-PBKTA-TE
<i>Security Guide for Users</i>	AA-PBKQA-TE
<i>Supplementary Documents, Volume 1: General User</i>	AA-MF06A-TE
<i>Supplementary Documents, Volume 2: Programmer</i>	AA-MF07A-TE
<i>Supplementary Documents, Volume 3: System Manager</i>	AA-MF08A-TE
<i>Technical Summary</i>	AA-MG63B-TE
<i>ULTRIX/SQL Database Administrator's Guide</i>	AA-PBZ8A-TE
<i>ULTRIX/SQL Installation Guide</i>	AA-PBZBA-TE
<i>ULTRIX/SQL NET User's Guide</i>	AA-PBZ7A-TE
<i>ULTRIX/SQL Operations Guide</i>	AA-PBZ9A-TE
<i>ULTRIX/SQL Reference Manual</i>	AA-PBZ6A-TE
<i>ULTRIX/SQL Release Notes</i>	AA-PBZAA-TE
<i>vi Beginner's Reference Card</i>	AV-MF10A-TE

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1957-03-29	1957-03-29
1957-03-30	1957-03-30
1957-03-31	1957-03-31



The master index helps you locate topics in the ULTRIX documentation by directing you to manuals and page numbers.

The master index entries follow these conventions:

- Each master index page reference is preceded by an abbreviated manual title that indicates which manual discusses the topic. For example, the following master index entry points to page 3-10 in the *Guide to Backup and Restore*:

**fsck command**

checking restored file system with, *Backup* 3-10

If the subject of the index entry is described in two or more manuals, the page references are alphabetized according to the abbreviated manual title.

Table 2-1 lists the abbreviated title for each manual in the master index.

- Page references for some figures, tables, and notes are indicated by a letter that appears at the end of the page reference. For example, an “f” appears at the end of figure page references and a “t” appears at the end of table page references. The following example shows an index entry for a note:

**passwd file**

last entry in, *YP* 2-15n

- Each guide in the ULTRIX documentation set is focused on just a few broad topic areas. A guide that focuses on a topic area is the best one to reference for information about that topic. The master index indicates that a particular guide is the best reference for a topic as shown:

**Shutdown command, RefPages** 8-345

*Best reference, Shutdown*

shutting down multiuser mode, *Shutdown* 1-1e

In this example, the *Guide to Shutdown and Startup* is identified as the best reference for the topic of the shutdown command.

- Entries in the master index often refer to other entries. For example, the entry for the `mknod` system call contains this reference:

**mknod system call**

*See also* `mkdir` command

In general, when an entry refers to another entry, the text of the reference is identical to the other entry. In this case, you would look for the entry “`mkdir` command” in the index.

Some entries contain references to groups of master index entries or books that are not covered by the master index. In this case, the text of the reference is not identical to any other entries. These references appear in italics as shown:

**file**

*See also specific file names*

**VAX C**

*See also the Guide to VAX C for ULTRIX*

The first reference indicates that you should look for other page numbers that discuss the topic *file* under specific file names, such as `rc.local`, `hosts`, or `svc.conf`.

The second reference indicates that you should refer to the *Guide to VAX C for ULTRIX*, which is not indexed by the master index. Check the index in that guide for information on where it covers the topic in which you are interested.

Table 2-1 lists the abbreviation for each book that contains entries in the master index.

**Table 2-1: Manual Title Abbreviations**

Abbreviation	Manual Title
<i>AdvInstall</i>	<i>Advanced Installation Guide</i>
<i>Backup</i>	<i>Guide to Backup and Restore</i>
<i>BasicInstall</i>	<i>Basic Installation Guide</i>
<i>BGB</i>	<i>The Big Gray Book: The Next Step with ULTRIX</i>
<i>BIND/Hes</i>	<i>Guide to the BIND/Hesiod Service</i>
<i>Configfile</i>	<i>Guide to Configuration File Maintenance</i>
<i>CrashRec</i>	<i>Guide to System Crash Recovery</i>
<i>CursesX</i>	<i>Guide to X/Open curses Screen Handling</i>
<i>DECrpc</i>	<i>DECrpc Programming Guide</i>
<i>DiskMaint</i>	<i>Guide to Disk Maintenance</i>
<i>DMS</i>	<i>Guide to Diskless Management Services</i>
<i>ErrorLogger</i>	<i>Guide to the Error Logger</i>
<i>Ethernet</i>	<i>Guide to Ethernet Communications Servers</i>
<i>Exercisers</i>	<i>Guide to System Exercisers</i>
<i>InterNatl</i>	<i>Guide to Developing International Software</i>
<i>Kerberos</i>	<i>Guide to Kerberos</i>
<i>LocBrok</i>	<i>Guide to the Location Broker</i>
<i>LAN</i>	<i>Introduction to Networking and Distributed System Services</i>
<i>nawk</i>	<i>Guide to the nawk Utility</i>
<i>Network_Prog</i>	<i>Guide to Network Programming</i>
<i>NFS</i>	<i>Guide to the Network File System</i>
<i>Primer</i>	<i>The Little Gray Book: An ULTRIX Primer</i>
<i>RefPages</i>	<i>Reference Pages Section 1: Commands</i> <i>Reference Pages Section 2: System Calls</i> <i>Reference Pages Section 3: Library Routines</i> <i>Reference Pages Section 4: Special Files</i> <i>Reference Pages Section 5: File Formats</i> <i>Reference Pages Section 7: Macro Packages and Conventions</i> <i>Reference Pages Section 8: Maintenance</i>
<i>RIS</i>	<i>Guide to Remote Installation Services</i>



**Table 2-1: (continued)**

<b>Abbreviation</b>	<b>Manual Title</b>
<i>sccs</i>	<i>Guide to the Source Code Control System</i>
<i>setld</i>	<i>Guide to Preparing Software for Distribution on ULTRIX Systems</i>
<i>Shutdown</i>	<i>Guide to Shutdown and Startup</i>
<i>SysEnviron</i>	<i>Guide to System Environment Setup</i>
<i>SysNetSetup</i>	<i>Guide to System and Network Setup</i>
<i>TechSumm</i>	<i>Technical Summary</i>
<i>TermEmul</i>	<i>Guide to IBM Terminal Emulation for VAX Processors</i>
<i>uucp</i>	<i>Guide to the uucp Utility</i>
<i>X/OpenTransport</i>	<i>Guide to the X/Open Transport Interface</i>
<i>YP</i>	<i>Guide to the Yellow Pages Service</i>

